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EXERCISES.

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IF $a^2 = b^2 - bc$ and $b^2 = c^2 - ca$, then $c^2 = a^2 - ab$. [*Frank Morley.*]

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SOLVE the equations

$$x^2(y - z) = a,$$
$$y^2(z - x) = b,$$
$$z^2(x - y) = c.$$ [*Frank Morley.*]

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IF we take products of n consecutive terms of the arithmetical series a, $a - d$, etc., commencing for the first product with the first term, for the second product with the second term, and so on; and then multiply these products by the coefficients in the expansion of $(1 - x)^n$, the aggregate will be $n!\, d^n$, which is independent of the first term. [*W. W. Johnson.*]

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IF a square be inscribed in the face of a cube, the plane determined by one side and the corner of the opposite face corresponding to the adjacent corner of the same face touches the inscribed sphere. [*T. M. Blakslee.*]

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IF squares be inscribed in the faces of a cube, their sides and the corresponding vertices of the opposite faces determine 24 planes tangent to the inscribed sphere. [*T. M. Blakslee.*]

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IN a regular heptagon $ABCDEFG$, show that

$$\frac{1}{AB} = \frac{1}{AC} + \frac{1}{AD}.$$ [*Frank Morley.*]

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FIND the areas of the greatest and of the least rhombus inscribed in an ellipse. [*R. H. Graves.*]